UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Statistica Computazionale

2021-1-F8204B004-F8204B007M

Learning objectives

This course provides an introduction to the most important computational statistical methods. Students will be introduced to the use of R for the implementation of the computational methods shown during the course.

Contents

We will cover the basic principles of the Monte Carlo method, the theoretical basis of the random numbers generators as well as the fundamental concepts of resampling techniques as we discuss bootstrap and jackknife.

Detailed program

- Random numbers generation for uniform, non-uniform, discrete and continuous distributions

- Introduction to Monte Carlo simulation and Monte Carlo Integration

- Variance reduction techniques

- Resampling Techniques: bootstrap and jackknife

- Bootstrap confidence intervals

- Bootstrap Hypothesis Testing

- Numerical and graphical aspects for likelihood inference

Prerequisites

At least BSc courses on probability calculus, statistical inference; basic programming skills

Teaching methods

- Lectures
- Tutorial sessions in computer laboratory

Assessment methods

Oral and a computer-based exam.

During the Covid-19 emergency period, oral examinations will take place remotely through the WebEx platform. On the e-learning page of the course there will be a public link for accessing to the examination of possible virtual spectators

Textbooks and Reading Materials

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Semester

First semester.

Teaching language

Italian.